



<https://doi.org/10.11646/zootaxa.4370.5.7>

<http://zoobank.org/urn:lsid:zoobank.org:pub:8885A485-C2FD-4629-93D0-2A6F98DB68AE>

A new species of the genus *Colilodion* Besuchet, 1991 (Coleoptera: Staphylinidae: Pselaphinae) from Mindanao, the Philippines

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Abstract

Colilodion colongi sp. nov. of the clavigerite ant-loving beetle from Mindanao, the Philippines is described, illustrated, and distinguished from related species. The distribution map for all known species is given.

Key words: Staphylinidae, Pselaphinae, Clavigeritae, Colilodionini, *Colilodion*, new species, Mindanao, the Philippines

Introduction

The genus *Colilodion* Besuchet, 1991 is a very enigmatic member of the supertribe Clavigeritae of the subfamily Pselaphinae. It is the only member of the tribe Colilodionini which at the time of its description was supposed to be a connecting link between Clavigeritae and Pselaphitae (Besuchet 1991), showing that Clavigeritae were derived from Pselaphitae. The recent discovery of *Protoclaviger trichodens* Parker & Grimmel, 2014 from Early Eocene (≈ 52 Ma) proved that Clavigeritae are an ancient lineage of myrmecophilous beetles and are probably older than Pselaphitae. *Colilodion*, as a member of the obligatory myrmecophilous supertribe Clavigeritae, is also considered to be myrmecophile, although there is no direct evidence for it yet. All specimens of seven described species were collected by sifting of forest litter or by flight intercept trap. The current known distribution of the genus (Fig. 1) is a large area of south-eastern tropical Asia, from southern China (Hainan) via Vietnam, continental Malaysia (Pahang), Borneo, Sumatra up to the Philippines (Mindanao, Palawan). The key and photos of all known species has been published recently (Yin & Cuccodoro 2016).

The aim of the present paper is the description of a new species based on four specimens, largest known series of *Colilodion*, collected by sifting of forest litter from Mt. Hamiguitan in Mindanao (the Philippines).

Material and methods

Specimens prepared for the morphological study were examined with a Leica S8APO stereoscopic microscope with diffuse lighting at magnifications up to 128 \times . Habitus images were taken with a Canon EOS 750D in combination with a Canon MP-E 65mm f/2.8 1-5x macro lens. The resulting images were focus stacked by Helicon Focus 6.7.1 and postprocessed in Adobe Photoshop CC 2015.5.

The aedeagus was studied using a Zeiss transmitted-light microscope at magnifications up to 500 \times . The aedeagus was dissected and preserved in Euparal on a plastic label pinned together with the specimen. All drawings were made using a drawing tube attached to Zeiss.

The head length was measured from anterior margin of pronotum to the anterior margin of the frontal rostrum; head width was measured across the eyes; the elytral length was measured along the suture, the width means maximum width across the pronotum, elytra, or other structure. The body length is a combined length of the head, pronotum, elytra, and abdomen. The lengths of the basal and apical parts of the median lobe were measured in dorsal view.

The terminology applied here follows Chandler (2001), except we use ‘ventrite’ instead of ‘sternite’ when discussing ventral thoracic structures.

Label data are cited verbatim. All labels of the studied material are printed; a slash (/) separates different labels. All type specimens were provided with the following red printed label: HOLOTYPE or PARATYPE, *Colilodion colongi* sp. n., P. Hlaváč det., 2017.

The examined material is deposited in the collection of National Museum, Prague, Czech Republic (NMPC) and in the private collection of Peter Hlaváč, Prague, Czech Republic (PHPC).

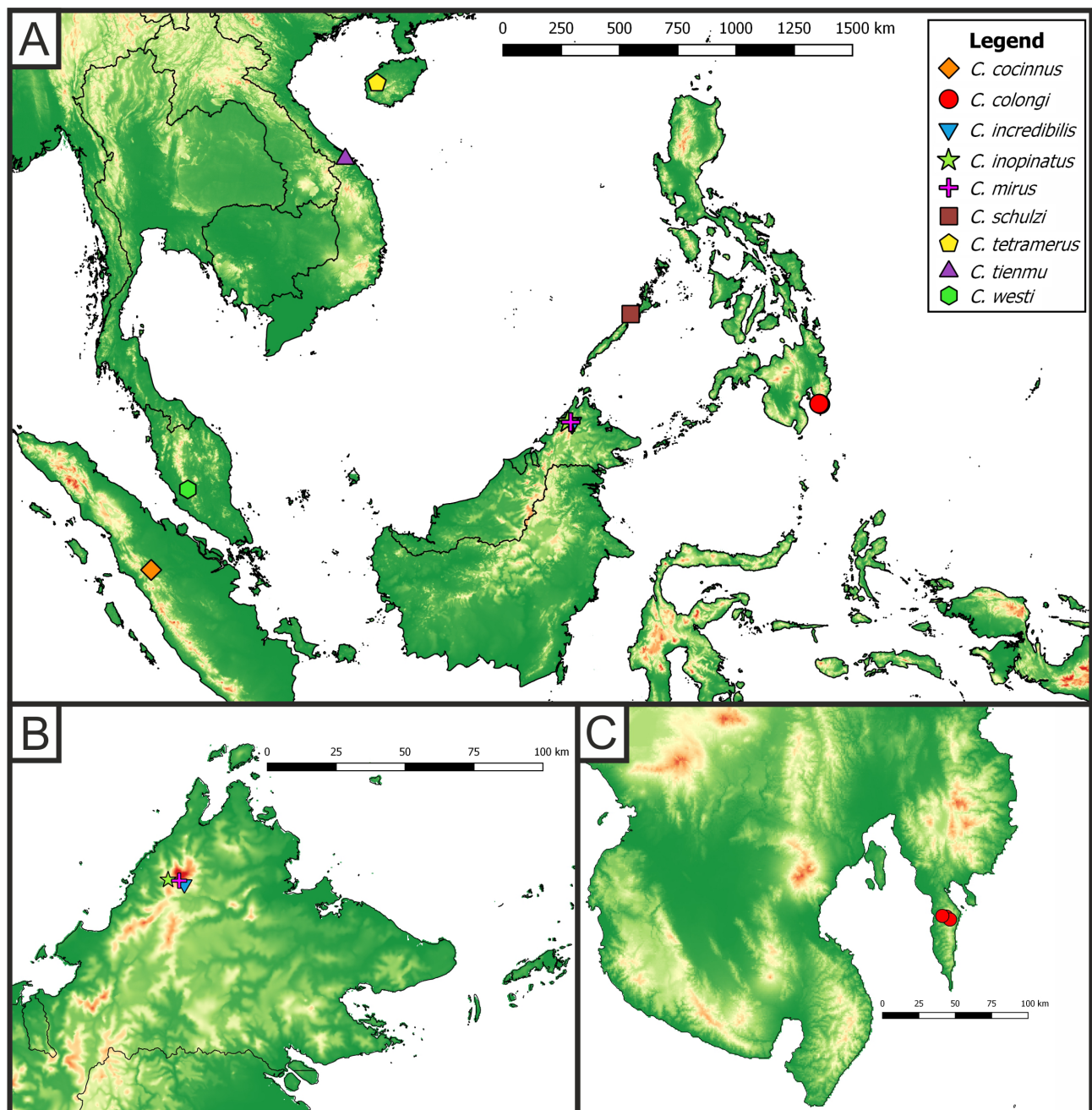


FIGURE 1. Map of distribution of the genus *Colilodion*. A—whole range in SE Asia; B—close view to Sabah (Malaysia) with three species (marked with star, cross and reversed triangle); C—close view to Mindanao (the Philippines) with *C. colongi* sp. nov. (marked with circle).

***Colilodion colongi* sp. nov.**

Fig. 2–4

Type locality. The Philippines, Mindanao island, Davao Oriental prov., Mt. Hamiguitan.

Type material. HOLOTYPE, ♂: PHILIPPINES: Mindanao isl., Davao Or. prov., Mt. Hamiguitan, Lantawan, alt. 1250–1300m, N6°42'46.92" E126°11'21.03", 20.ii.2017, sifting moss on ground & branch in mossy forest, Damaška, Hiřman, Šípek, Vondráček lgt. NMPC. PARATYPES: 1 ex: PHILIPPINES: Mindanao isl., Davao Or. prov., Mt. Hamiguitan, Camp 4, alt. 940–960m, N6°43'51.4" E126°10'02.2", 21–22.ii.2017, sifting leaf litter in montane forest, Damaška, Hiřman, Šípek, Vondráček lgt. PHPC. 1 ex, 1 ♀: PHILIPPINES: Mindanao isl., Davao Or. prov., Mt. Hamiguitan, Research Base, alt. 390–440m, N6°44'07.44" E126°08'30.14", 16–17.ii.2017, sifting leaf litter in secondary dipterocarp forest, Damaška, Hiřman, Šípek, Vondráček lgt. NMPC.

Description. Length 2.15–2.50 mm, maximum width 0.80–0.95 mm. Body and appendages reddish brown (Fig. 2). Pubescence of body almost absent, short and recumbent only on appendages and composite tergite.

Head (Figs 2, 3A, 3B) about 1.6–1.7 times as long as wide. Vertex strongly raised dorsally, narrowed towards eyes, surface of raised area densely and roughly punctate, with setae in punctures, lateral area finely punctate, strongly constricted, with four well-defined, posteriorly-oriented dorsolateral and dorsomedian trichomes; posterior edge of vertex narrowed to become keel-like, bearing well-defined trichome. Frons sparsely but roughly punctate with fine pubescence on sides. Eyes laterally prominent, each eye composed of about 22 facets. Two post-ocular carinae present. Ventrally, head convergent to posterior part, gular ridge broad, about 0.25 of width of maximum width of head, thickened at middle, surface smooth.

Antennae (Figs 2, 3C) three-segmented; scape visible in dorsal view, about as long as transverse antennomere II, strongly broadened throughout length, with impressed dorsal surface which is divided in four smooth fields, peripheral edge with short, dense pubescence, with longer macrosetae on rounded apex.

Pronotum (Figs 2, 3A, 3B) trapezoidal, 1.2–1.3 as long as head, gradually narrowed apically, twice wider at posterior part than at base; apical portion broadly notched, notch deeper in middle; median groove narrow and of even width, born on posterior margin of notch, not reaching pronotal base; anterior corners with triangular anteriorly projecting trichomes, posterolateral angles distinct, lateral sides keeled on entire length, pronotal base with sharp, long, median process; dorsal anterior edge with short and thin trichomes oriented anteriorly.

Elytra (Figs 2, 3D) wider than long; elytral disc flattened, densely microsculptured; elytra lacking foveae, each elytron with three wide and deep striae, sutural and external striae entire, central stria about $\frac{3}{4}$ of length of elytron; anterior margin round, humeri absent, posterior angles sharp, posterior margin of each elytron with median trichome.

Venter with prosternum with diamond process rising from anterior margin, and large vertical bifurcate process rising from posterior margin; median area with several setae, lacking obvious trichome. Anterior mesoventral edge slightly raised, pointed in middle, lateral areas with big and shallow punctures and fine setae. Metaventrite (Figs. 2B, 3E) raised in middle, declining in posterior part, with almost indistinct punctuation and setation, posterior metaventral process concave.

Abdomen (Figs 2, 3F–G) transverse with composite tergite broadly and deeply impressed at base, impression on sides bearing trichome, sparsely punctate with short setae placed in punctures. First three visible paratergites well-defined. Second visible tergite more densely punctured. First (III) visible sternite with coarse punctuation and dense microsculpture, setae fine; second visible sternite (IV) long, punctuation fine, setae fine; following sternites very short, similarly microsculptured and with short setae.

Tibiae distinctly sculptured, narrowed at basal third, apical two-thirds abruptly thickened; mid and hind tibiae bearing conspicuous rows of erect setae on dorsal side.

Aedeagus (Fig. 4) long, almost three times as long as wide, basal bulb 2.7 times as long as slender, pointed apical lobe, parameres short, slightly exceeding basal bulb, with three preapical and two apical setae.

Sexual dimorphism. None apparent.

Differential diagnosis. *Colilodion colongi* is very similar to *C. schulzi* Yin & Cuccodoro, 2016, species recently described from Palawan, the Philippines. Both species are readily separated from all other *Colilodion* species by the shape of antennomere III broadened throughout entire length, with impressed dorsal surface, which is divided in four smooth fields. From *C. schulzi* the new species differs by 1) absence of rows of thick, erect golden setae on apical margin on the composite tergite, 2) absence of erect golden setae on visible tergite II, 3) absence of conspicuous rows of erect setae on hind tibiae, 4) prosternal anterior process not triangular, posterior process bifurcate, and 5) metaventrite and second visible sternite with much less distinct punctuation.

Biology. All four specimens were collected by sifting leaf litter or moss at different altitudes with different vegetation types. Two specimens were collected in lowland secondary dipterocarp forest (alt. 400–950m) on the border with agro-ecosystem (lowland) formation (alt. 300–450m). Both zones experienced logging in 1980s. Dominant species of trees are *Shorea* spp., *Medinilla* spp. and *Smilax* spp. as well as several species of ferns (e.g. *Cyathea contaminans*). Third specimen was caught in surroundings of Camp 4, which is located in montane forest (alt. 900–1250m) usually dominated by *Falcatifolium gruezoii*, *Shorea polysperma*, or *Agathis philippinensis*. This region was still affected by logging in 1980s. Last specimen was collected in mossy forest (alt. 1200–1500m) with dominant species *Dacrydium elatum* and *Calophyllum blancoi*. This specimen was sifted from moss.

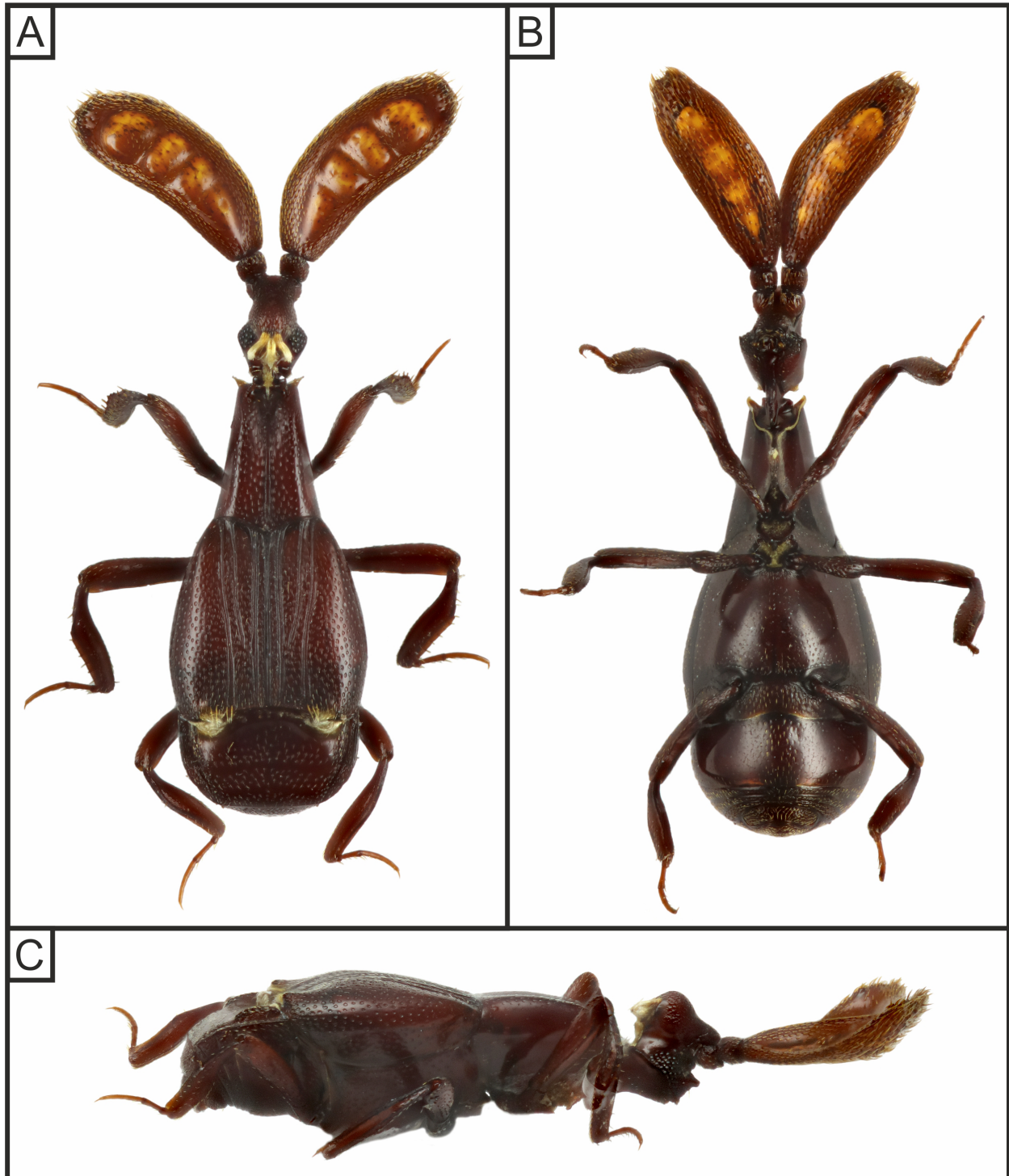


FIGURE 2. *Colilodion colongi* sp. nov. A—habitus, dorsal view; B—habitus, ventral view; C—habitus, lateral view.

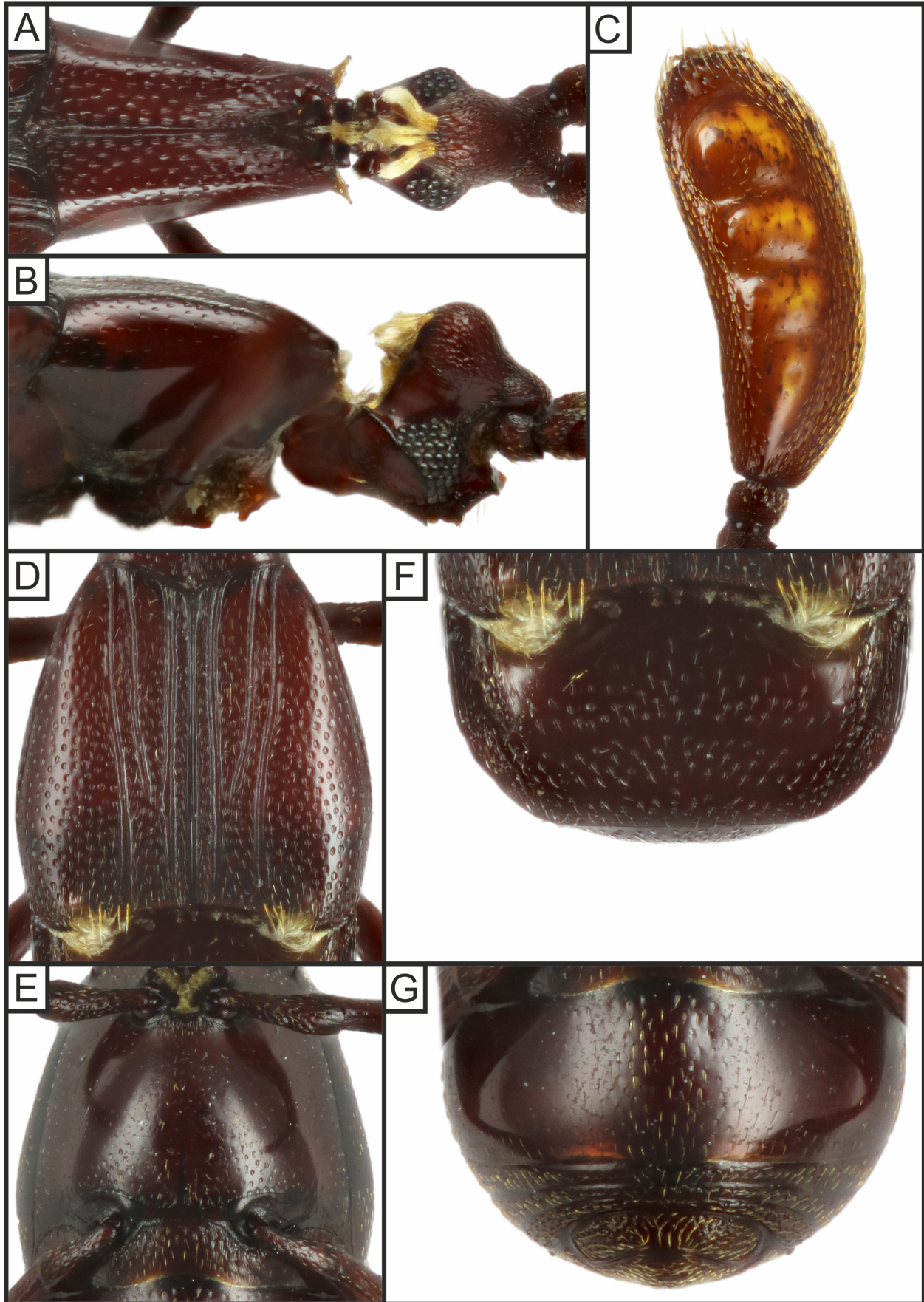


FIGURE 3. *Colilodion colongi* sp. nov. A—head and pronotum, dorsal view; B—head and pronotum, lateral view; C—left antenna; D—elytra; E—metaventricle; F—abdomen, dorsal; G—abdomen, ventral.

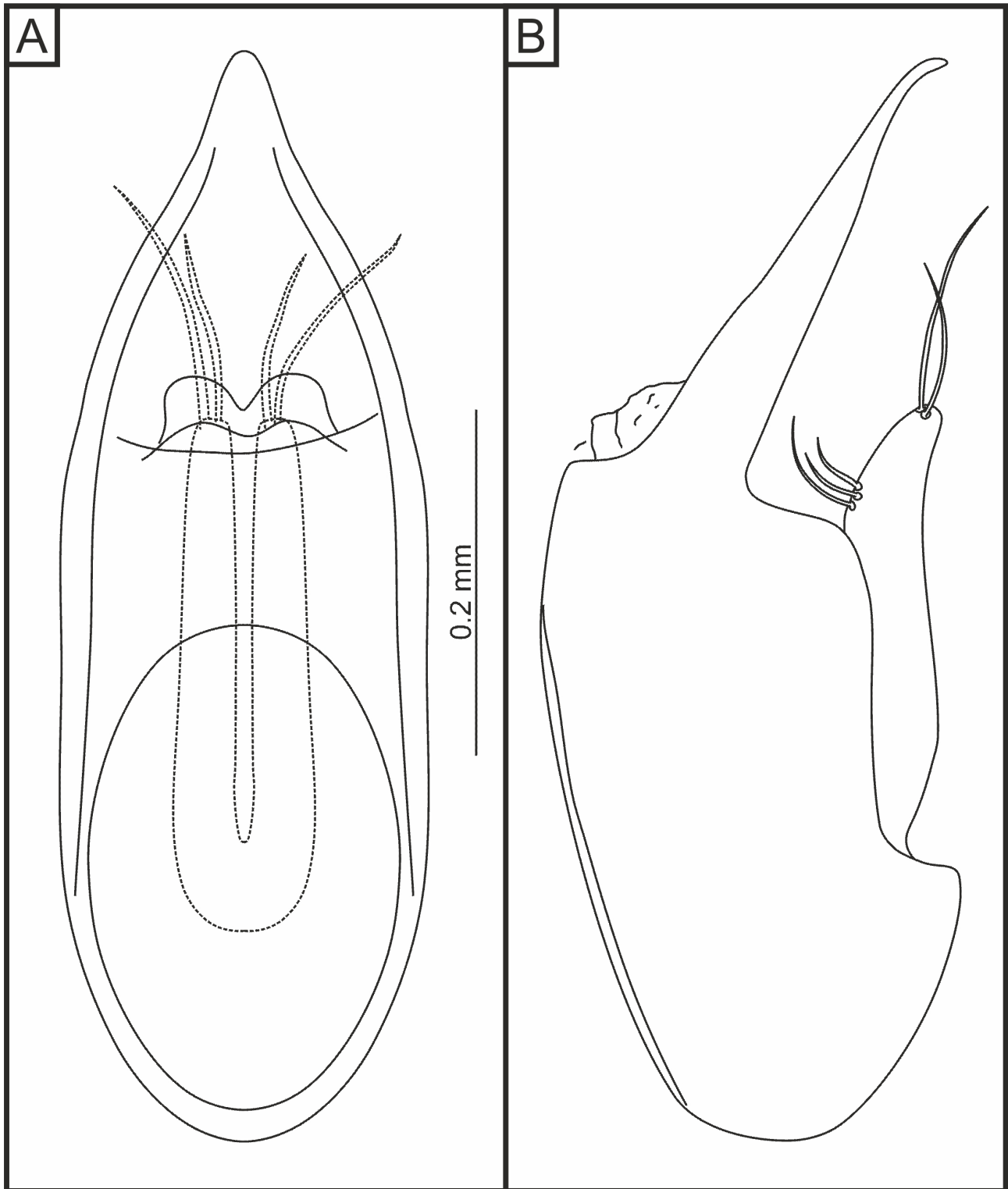


FIGURE 4. *Colilodion colongi* sp. nov. A—aedeagus, dorsal view; B—aedeagus, lateral view.

Etymology. Patronymic, the species is named after Mr. Ruel D. Colong (DENR-XI's Protected Area Superintendent of Mt. Hamiguitan Range Wildlife Sanctuary) who was greatly supportive during the expedition on Mt. Hamiguitan in February 2017.

Distribution. The Philippines, island Mindanao.

Acknowledgements

We warmly thank Jon Cooter (Oxford) for reading and correcting the English, we also thank Albert Damaška and Matyáš Hírman for their sifting samples, which contained material used in this study as well as to other members of the “Mt. Hamiguitan” expedition, namely Petr Šípek, Dale J. Mohagan and Dave P. Mohagan. We are indebted to all guides and load bearers for their help with collecting and taking our equipment to several places in Mt. Hamiguitan (Bantay Gubat members: Alfredo Bolante Sr., Alfredo Bolante Jr., Boy Jimenez and Jerry Torreón). DENR-XI’s Protected Area Superintendent Ruel D. Colong and his colleagues Felipe Gorme and Edgar Solis profoundly supported the expedition. We are grateful to Joselin Marcus E. Fragada (CESO III, DENR 11 Regional Director) for the possibility to collect the material in Mt. Hamiguitan under the permit WGP No. XI-2016-13. We greatly appreciate the collaboration with colleagues from Central Mindanao University, namely Dr. Maria Luisa R. Soliven (University President of CMU), Luzviminda T. Simborio (Vice President for Research and Extension), Dr. Rolito G. Eballe (Dean, CAS), Dr. Reggie Y. Dela Cruz (Former Chair, Biology Department) and Dr. Socorro H. Laraga (Chairman, Biology Department). This research was supported by grant CIGA No. 20154312 of the Czech University of Life Sciences Prague, Faculty of Forestry and Wood Sciences to PH, by Ministry of Culture of the Czech Republic (DKRVO 2017/14, National Museum, 00023272) and by Charles University (grant SVV 260 434/2017) to DV and by DOST-BCDA grant to ABM.

References

- Besuchet, C. (1991) Révolution chez les Clavigerinae (Coleoptera, Pselaphidae). *Revue Suisse de Zoologie*, 98 (3), 499–515.
<https://doi.org/10.5962/bhl.part.79801>
- Chandler, D.S. (2001) Biology, morphology, and systematics of the ant-like litter beetles of Australia (Coleoptera: Staphylinidae: Pselaphinae). *Memoirs on Entomology International*, 15, 1–560.
- Parker, J. & Grimaldi, D.A. (2014) Specialized myrmecophily at the ecological dawn of modern ants. *Current Biology*, 24, 2428–2434.
<https://doi.org/10.1016/j.cub.2014.08.068>
- Yin, Z.W. & Cuccodoro, G. (2016) *Colilodion schulzi* sp. n. (Coleoptera: Staphylinidae: Pselaphinae) from Palawan, the Philippines, with habitus photographs and a revised key to all *Colilodion* species. *Revue suisse de Zoologie*, 123 (1), 153–158.